

# **The Funding Formula as a Higher Education Policy Tool in Tennessee**

Russ Deaton  
Tennessee Higher Education Commission  
Director of Fiscal Analysis  

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Vanderbilt University

## **Summary**

States have used funding formulae for several decades as a means for infusing methodology and analysis to the process of determining higher education budgets. Yet, one of the acute challenges policy makers face today is constructing a formula design that adequately reflects statewide higher education policy and goals. States have an interest in ensuring that higher education priorities align with formula methodologies. Inconsistencies between formula structure and higher education master planning lead to an inadequate formula model and can erode faith in formula methodology. During a prolonged austere fiscal climate, the importance of aligning goals and funding becomes paramount as funding formulas come under increased scrutiny. Tennessee is one of numerous states that have reduced appropriations for higher education over the last few years. It is imperative to review the effectiveness and adequacy of the Tennessee funding formula as a tool that reflects statewide policy.

## **Background**

The fiscal pressures facing higher education at the dawn of the 21<sup>st</sup> century are immense. Across the country, states that are faced with enormous budget deficits are scaling back state support for higher education. A majority of states reduced states approved budgets for FY 2003-04 that reduced appropriations to higher education from FY 2002-03 levels. Consequently, institutions are increasing student fee charges, transferring an even larger portion of the total cost of education to students and parents and away from the taxpayer funds. In 2003-04 nearly all fifty states implemented tuition increases, as high as 40 percent in Arizona and 25 percent in California. Fiscal austerity by no means automatically dooms an institution or a system to decline. However, today's university is faced with heightened demands for accountability and excellence, with the concomitant challenge of increasing access, all while under immense fiscal pressure from stagnant resources (Cameron & Smart, 1998).

The decade of the 1990s was an extremely robust time for higher education. Revenues soured to all time highs as states, flush with cash from the economic boom of the internet economy, poured millions of dollars into state colleges and universities, (Callan, 2002). The onslaught of the recession during the early parts of the current decade brought a swift end to states' ubiquitous largesse, as higher education was forced to quickly shift to enacting policies for tight fiscal conditions. Humphreys (2000) concluded that the resulting slowdown in the nation's economy translated directly into a decline in state support for higher education. From 1997 to 2000, states increased appropriations for higher education by

22.5 percent over the period, yet from 2000 to 2003, increases had slowed to 11.7 percent over the three-year period (Grapevine Database, 2003).

Tennessee's higher education system belied national trends in state appropriations for higher education. During the former period (1997 to 2000), Tennessee experienced only a 7 percent increase in state appropriations, while during the recent period (2000 to 2003), it experienced a 12 percent increase in appropriations, reversing the national trend of slowing appropriations. However, beginning with a 5% mid-year impoundment in 2002-03, Tennessee joined much of the rest of the nation in reducing appropriations to higher education. Newly elected Governor Phil Bredesen's first budget for FY 2003-04 recommended a 9% reduction for higher education, which represented over \$100 million in support. When evaluated within the specific environment of the last decade, higher education in Tennessee was a declining priority. From FY 1997 to FY 2004, state general fund expenditures increased 37 percent from just over \$7 billion to just under \$10 billion. During that same time, higher education appropriations increased just 14 percent. Other priorities had replaced higher education as a funding priority in Tennessee. Funding for the state's health care program, TNCARE, increased 126 percent and K-12 education funding increased 30 percent over the period. The FY 2004 Tennessee state general fund budget carved out 10.7 percent of expenditures for higher education. Yet, 15 years ago, Tennessee devoted 15.4 percent of general fund expenditures to higher education. The relative drop of 4.7 percent represents nearly \$500 million that higher education would have received had it maintained its funding position relative to other state priorities.

Over the last two years, the fiscal climate for higher education in Tennessee has been altered dramatically. Tennessee higher education has been forced to cope with very large budget reductions in fiscal years 2002-03 and 2003-04. Mid-year reductions or impoundments in 2002-03 totaled over \$47 million. Permanent base reductions for 2003-04 totaled over \$102 million off of a base of slightly over \$1.1 billion. The resulting nine percent budget reduction was one of the largest in the nation. While the relative changes in state appropriations in Tennessee appear to be manageable, higher education institutions in the state are already funded at lower rates than peer institutions. According to the most recent data available from the SREB, Tennessee universities are funded by state appropriations at an average of 82 percent of peer funding.

According to Callan (2002), higher education's "competitive position is weakened by the perceptions of governors, legislators, and key executive and legislative staff members," in that "higher education can shift costs to students and their families by raising tuition." Tennessee and its neighboring states in the SREB did just that over the last several years as a way to compensate for the diminished commitment to higher education by state legislators. From 1996-97 to 2001-02, the median university tuition increased by at least 21 percent in 15 of the 16 SREB states (Virginia was the exception). Arkansas (61 percent) and Tennessee (58 percent) led the way, with increases that greatly outpaced inflation. Over the five-year period 1998-99 to 2003-04, tuition and fee charges at Tennessee universities have increased an average of 63 percent.

### **Funding Formulae**

Due to the scarcity of available state resources to meet the increasing costs of serving a student population that is growing larger and more sophisticated, state officials have intensified focus on the mechanisms used to determine higher education funding. Generally,

states use either an incremental funding approach or a formula funding approach to determine state appropriations for higher education. Incremental funding involves increasing or decreasing funding for a particular cycle based on the prior year's allocation. In contrast, the formula method quantifies funding decisions based on variables and data sets.

Funding formulas were operationally defined by Marks and Caruthers (1999) as a system that “links resources mathematically to an institution's characteristics,” (p. 5). They generally incorporate calculations for instruction, academic support, research, public service, and other functions in a series of “mini-formulas” or calculations. The process is by nature an inexact science. Modeling, through a formula, the vast and complex enterprise of a higher education system is a daunting task, and there is simply no universally preferred method.

A funding formula serves as a contract between the state and higher education (Jones, 1984). Because the process and structure are agreed to ahead of time, the influence of politics and lobbying efforts on the appropriations process are subordinate to data analysis. This does not remove the impact of policy makers and state leaders from the funding process. Quite the opposite, those parties are central actors in the design and rationale of the funding structure, which serves an automated reflection of values and funding priorities. With a funding formula in place, the funding process is free from political influence and is transparent for all to see. Policy and politics are reserved for the formula design, an appropriate arena for policy decisions to be debated. A funding formula makes explicit the rules of the appropriations process. It also allows for future policy decisions to be informed by modeling the funding structure based on hypothetical data scenarios.

Essentially, funding formulas are designed to define the financial needs of a public higher education institution or system, an aim that is usually qualified by the desire for adequate funding or funding that is comparable to an external benchmark (such as a peer institution group). However, a funding formula will not guarantee that a state will appropriate money to higher education that it does not have. Therefore, in addition to defining higher education's needs, formulas serve to equitably distribute higher education funds that are available between competing institutions. This function is crucial, especially during austere fiscal times, when institutions with diminished lobbying power would be competing with large, politically connected institutions for scarce resources. The funding formula serves as a buffering agent or an equity guarantor, thus removing potential political influence from the fiscal distribution process.

For decades, numerous states have utilized the funding formula method to determine funding for higher education. Historically, funding formula proliferation has been generally constant and more concentrated in the southern states. In a 1999 study, Marks and Caruthers found that 10 of the 16 SREB states used a funding formula. McKeown (1996) found 36 states that used a funding formula in 1984, a number that dropped to 32 in 1992 and down to 30 in 1996. She identified two trends in states' use of funding formulas: that some states are beginning to abandon the use of formulas in the appropriations process, and that the formulas that are in use are becoming more complex and technical.

Formulas must balance several virtues in tension - accountability and autonomy, simplicity and nuance, budget needs and fiscal realities, (McKeown, 1996). The funding formula, the lens through which state officials evaluate fiscal issues in higher education, is at the center of state higher education policy discussions. Yet, analyses of funding formulae have tended to focus on the mechanics of the formula structures and dissections of the algebraic equations and input data used in the calculations. In other words, analyses of

funding formulae have largely been descriptive and have lacked a certain degree of sophistication (McKeown, 1994). Researchers have pointed out a “lack of clarity regarding what formulas are designed to do, what their characteristics are, and how they relate to state policy,” (Jones 1984, p. 46). Some attention has been given to the intersection of fiscal systems and state policies (McGuinness, 2001), though primarily through the use of performance funding or performance budgeting (Burke & Minassians, 2001).

Jones (1984) argued that the budget process is simply an extension of the planning process. With that relationship in mind, the need for strong linkages between planning at the state level and budget mechanisms becomes quite clear. Planning documents without fiscal strength become suggestions rather than clear policy directives. The funding mechanism is “the device by which a state carries out its plans and ... signals its priorities,” (Jones, 1984, p. 13).

This paper aims to investigate how the Tennessee funding formula relates to and reflects state higher education policy. Part of that discussion will describe the mechanics of the formula structure, yet the central issue is how well those structures reflect state policy, rather than the specifics of the structures themselves. In order to evaluate the connection between the funding mechanism and statewide policy, it is prudent to first examine what state policies and goals are in place and how they are communicated to state political leaders, the higher education system, the business community and the public.

### **Tennessee Statewide Master Plan**

One of the primary functions of a coordinating board such as the Tennessee Higher Education Commission (THEC) is to coordinate the many different sectors of the higher education community. THEC develops and promotes statewide higher education policy, whereas individual institutions or sectors (i.e. the community college sector) do not have the responsibility to formulate statewide policy. That task is entrusted to a coordinating or singular governing board that must look beyond institutional interest to that of the greater good of the state.

Most states have some version of a planning document or guidelines that define the policy goals of the state’s higher education system. These documents, typically referred to as “master plans,” are a collective policy statement of what a state values for its higher education system. Of the 31 states identified by a study of the Education Commission of the States (ECS) as currently having master or strategic plans, 25 addressed access themes, 24 addressed technology, 22 addressed economic development and 21 addressed finance. The ECS study identified 15 separate themes addressed in state master plans. The current version of the Tennessee Statewide Master Plan for Higher Education for 2000-2005 “outlines goals and general objectives” and should be viewed as a “continually developing guide to the future of higher education in Tennessee.” The Tennessee master plan outlines nine goals that broadly illuminate the policy directions for the foreseeable future including higher education’s role in economic development and quality of life through increased educational attainment.

### **Tennessee Statewide Master Plan Goals, 2000-2005**

#### **Goal 1 – Elevate the educational attainment level of Tennesseans.**

- Goal 2 – Clarify all institutional missions for greater distinctiveness, with programs, services, and resources aligned to support the mission.**
- Goal 3 – Strive to be among the national leaders in the development and assessment of quality instructional programs based on student outcomes.**
- Goal 4 – Strive to be recognized as a national leader for quality research and public service.**
- Goal 5 – Strive for a sustained level of funding that will allow Tennessee citizens to reach their educational objectives, attain cultural and social goals, and compete economically with the most progressive states in the region.**
- Goal 6 – Public higher education will play a major role in the economic development of Tennessee.**
- Goal 7 – Implement an efficient, high quality information system that provides access and opportunity for educational services, as well as the ability to collaborate and partner with business and other agencies.**
- Goal 8 – Offer relevant educational programs that address economic, intellectual, and social problems by partnering with business, government, and P-12 and other educational institutions.**
- Goal 9 – Communicate effectively the value, strengths, and needs of higher education to the general public and to the legislative/executive branches of state government.**

The broad goals offer little in the way of specifics that would detail practices or activities in which higher education should engage. Yet, contained within each goal are objectives with specifics on the activity and the timing of implementation and achievement. These specifics offer the building blocks for a funding mechanism that is allowed to reflect and work on behalf of larger, statewide policy directions for higher education. They are designed to be a statement of values that the state and the higher education community mutually embrace to enhance the quality of life of Tennesseans through increased educational attainment.

### **The Plan of Action**

In the summer of 2002, facing the reality that the fiscal assumptions in the 2000-2005 Master Plan had failed to materialize, THEC approved a revision to the Master Plan that contained eleven recommendations in a Plan of Action. Originally, The Master Plan cautioned that the fiscal environment in which it was developed was uncertain and that the plan is “predicated on the assumption that higher education revenues will increase during the next five years; however, because of the uncertainty, only short-term benchmarks were written for many goals.” That admonition did, in fact, materialize as the fiscal climate for higher education eroded quickly in the first half of the 2000s, thus prompting the revised master plan document. Specifically the Plan of Action was “designed to carry higher education into the immediate future, to nurture and promote distinction in the Tennessee higher education system, and to make the most effective stewardship of resources entrusted to our care.”

THEC - seeking advice from institutions, the governing boards, and numerous higher education leaders - introduced the Plan of Action as a response to the tumultuous fiscal

environment that higher education found itself immersed in during the early part of the 2000s. The 11 point plan included policies aimed at increasing efficiency, sharpening focus on the core academic mission, and reconsideration of the policy of promoting unfettered access without regard to funding adequacy. The Plan of Action temporarily displaced the 2000-2005 Master Plan as the guiding document for Tennessee higher education, in part because the fiscal assumptions that were the foundation of the previous plan had altered the policy and planning landscape severely. Yet, the general policy goals were not dismissed; rather the Plan of Action supplemented and refocused the current planning document.

The Plan of Action contained recommendations that conflict with some of the goals in the Master Plan. The first point of the Plan of Action was to establish enrollment ranges for universities, which ostensibly conflicted with the goal of access. Other goals, intended to sharpen institutional focus and mission, added policy objectives not previously considered, such as the removal of general fund revenues for athletics and a curtailment of funding for remedial and developmental instruction at universities. Prudently, the Plan of Action recommended a revision of the funding formula in order to address the incongruence between funding mechanisms and statewide objectives. The Plan of Action provided the impetus and the opportunity to redesign the funding formula to reflect statewide policies and goals more accurately.

As part of the Plan of Action, THEC formed a Formula Review Committee to re-evaluate all aspects of the funding methodology in Tennessee. The committee's charge included encouragement to build a formula from the ground up, without necessarily relying on the existing funding structure. This exercise offers an opportunity to construct a funding structure that deftly and logically incorporates statewide priorities into a funding formula that can influence institutional behavior.

The introduction of the revised planning document presented challenges to policy makers who sought congruence between planning documents and fiscal policies. Yet, the predicament presented new opportunities to revise the funding mechanisms and the planning documents for the near future in order to achieve better synergy between the two. An examination of the current funding mechanism is instructive in order to evaluate its usefulness in reflecting statewide policies and goals.

### **The Tennessee Funding Formula**

Tennessee higher education is structured with two governing boards that oversee nine universities, 13 community colleges and 26 technology centers, with a coordinating board (THEC) that represents the interests of all of higher education to the state legislature. The coordinating board has responsibility for the development and execution of the funding request for higher education. For decades Tennessee's funding formula has served the state's need for a "fair and equitable distribution and use of public funds" that "(recognizes) institutional differences as well as similarities in function, services, academic programs and levels of instruction," (according to the enabling legislation of THEC). Institutions, in cooperation with their governing systems – the University of Tennessee and the Tennessee Board of Regents – have governing authority over enrollment policy, program elimination, tuition and other governance issues. THEC, as a coordinating board, is somewhat limited in its capacity to directly affect higher education policy. Rather, it is through the funding formula where key statewide higher education policies are promulgated in Tennessee.

Effectively, the formula provides a tool for policy implementation and the manifestation of those policies in the funding mechanism.

Tennessee has utilized a formula as its funding mechanism for higher education for nearly 40 years. The formula was designed to adequately express the needs of a variety of post-secondary institutions and, through the use of tuition policy, determine the appropriate funding level for which the state should be responsible. The Tennessee funding formula is quite nuanced and is designed to respond to changes in enrollment, infrastructure and a variety of other base operating changes.

### **Formula as a Policy Tool**

Several current and proposed policies for higher education and their relationship to the funding formula illustrate the success and failure of the ability of Tennessee's funding formula to reflect state higher education policies. For example, many states are increasing their demands that institutions of higher education become more accountable in their stewardship of funds and their quality of education (Alexander, 2000). Tennessee is one of the nation's leaders in its performance funding program and has historically received a positive evaluation from researchers and practitioners (Burke, 2000; Banta, et al 1996). Tennessee has established accountability as a priority by linking it directly with state appropriations through the funding formula.

Due to Tennessee's low educational attainment levels, access has been a primary goal of state policy. This policy is manifested through the use of an enrollment driven funding formula that ties dollars to enrollment levels. The goal of encouraging access is reflected in the incentives built into the funding formula for institutions to increase enrollment levels. However, the funding formula does not promote or reflect certain key performance standards. Graduation rates, typically below average at most Tennessee universities, are not rewarded nor punished in the funding formula. Legislators and policy makers have highlighted its absence in their criticism of the disconnect between the funding formula and statewide policy goals.

### *Access*

Tennessee has historically been an undereducated state compared to its southern neighbors. Data from the 2000 Census indicate that 19.6 percent of Tennesseans age 25 and over have a college degree compared to 24.4 percent nationwide and 21.4 percent in the southern region. In order to address this deficiency, Tennessee legislators and policy makers have promoted access at Tennessee universities as a method of improving educational attainment. Within Goal 1 – Elevate the educational attainment levels of Tennesseans - the master plan lists objectives for increasing college-going rates of recent high school graduates, increasing enrollments of underrepresented minority groups, and increasing the numbers of year to 4-year transfers. The Tennessee funding formula is designed to respond to increased enrollment levels and therefore reflects the policy goal of access. The formula analyzes all student credit hours (SCH) in a matrix consisting of student level (i.e. graduate, undergraduate) and subject taxonomy (History, Psychology, etc.). The resulting matrix is then converted to full time equivalent students (FTE), defined as 15 undergraduate SCH and 12 graduate SCH. The resulting FTE matrix is then evaluated against a same-sized matrix of predetermined student-faculty ratios. Each cell of FTE is divided by the corresponding student-faculty ratio to determine an appropriate number of faculty for a particular taxonomy

at a specific student level. Finally, all the required numbers of faculty are summed and the result is multiplied by a peer average salary.

#### Student Credit Hours

	Level 1	Level 2
Art	1200	1000
English	1000	750
History	750	800

#### SCH Conversion to FTE

	Level 1	Level 2
Art	80.0	66.7
English	66.7	50.0
History	50.0	53.3

#### Student-Faculty Ratio

	Level 1	Level 2
Art	25	25
English	25	25
History	20	20

#### Faculty FTE

	Level 1	Level 2
Art	3.2	2.7
English	2.7	2.0
History	2.5	2.7

#### Instruction Matrix Example

$$1200/15 = 80 \text{ FTE}$$

$$80 \text{ FTE}/25 = 3.2 \text{ Faculty}$$

The 1200 SCH are converted to 80 FTE. With a student faculty ration of 25:1, the 80 FTE require  $80/25 = 3.2$  faculty.

This component of the funding formula provides a clear incentive for institutions to increase access and matriculate more students. The more access is expanded, the greater the formula recommendation. This instruction component of the funding formula, which represents nearly half of the funding recommendation, is a clear manifestation of access as a statewide policy reflected in the funding formula.

Yet, some objectives contained in the Master Plan under the broad goal of increasing educational attainment are not reflected in the funding formula. The funding formula does not contain incentives for increasing enrollments of underrepresented minority groups or increasing the numbers of 2-year to 4-year transfers, two goals explicitly defined in the Master Plan. However, both of these objectives, while absent from the funding mechanism, are an integral component of the Tennessee performance funding program.

#### Accountability

Accountability, injected through the Tennessee performance funding program, is a prominent feature of the Tennessee funding formula. Tennessee introduced the concept of

directly tying state appropriations to measurable performance in 1979 and has modified and enhanced the program since. Performance funding incorporates several statewide goals, such as job placement for the community colleges and program accreditation at the universities, while also allowing for specific goals to be crafted uniquely for each institution. The third goal in the Master Plan – Strive to be among the national leaders in the development and assessment of quality instructional programs based on student outcomes – reflects a continuing commitment to quality initiatives in Tennessee higher education. Performance funding includes enrolled student and alumni surveys that investigate how students evaluated their collegiate experience and the education they received.

The program is an established and noteworthy component of the funding formula and is a clear manifestation of broad policy goals – enhancing quality – through the funding mechanism. The Master Plan goal actually reflects a small sliver of the performance funding program that has been developed to include numerous standards and benchmarks for all universities and community colleges. Annually, the program generates approximately \$38 million in the state appropriations request.

An additional element in the performance funding program links specific institutional goals with the nine elements of the Master Plan. Institutions are required to develop between two and five unique institutional goals that further one of the state’s Master Plan goals. Institutions, who craft such goals as increasing the number of distance learning programs and expanding partnerships with local businesses, are held accountable for objectives that directly mesh with the state’s broad policy goals within the Master Plan. These goals are evaluated as part of the performance funding score and are tied directly to a dollar calculation. Thus, performance funding demands that institutions demonstrate goals and benchmarks that are directly linked to statewide master planning.

### *Institutional Mission*

Some institutions have clearly defined or essentially self-evident missions. Community colleges are the gateway to the higher education system for students of all abilities and socio-economic status. Tennessee’s 13 such institutions not only help prepare recent high school graduates for college level work, but also function as job-retraining for displaced workers or for adult students who re-enter higher education after a lengthy hiatus. At the other end of the spectrum, the University of Tennessee at Knoxville, the state’s only public Research I institution, has the goals of a broad liberal arts undergraduate education, major academic research and public service (among others). It is the essence of the modern state flagship university, with over 25,000 students in a wide variety of bachelors, masters and doctoral degrees.

The other eight public universities have institutional missions and characteristics that can not be as neatly defined. Tennessee State University (TSU) is unique in that it is an historically black university that is also land-grant school which is engaged in major academic research. Its proximity in a large urban area (Nashville), with a main campus and a downtown satellite campus has shaped its mission to include adult and evening education for the metropolitan area. East Tennessee State University (ETSU) is a Doctoral Intensive institution that operates one of the state’s two medical schools. Other primarily undergraduate teaching institutions also engage in major research and operate doctoral programs, thus embracing multiple missions and identities.

The funding formula is designed to respond to and appropriately recognize multiple institutional missions. The major element of the funding formula, instruction, uses as a multiplier the average faculty salary of an institution's peer group. The institutions within the peer group were in part selected with recognition of institutional mission and Carnegie classification. Additionally, the enrollment matrix (see the instruction matrix example above), that analyzes enrollment distributions across a range of taxonomies and student levels, uses smaller student-faculty ratios for graduate programs than undergraduate programs (producing a larger required FTE faculty and thus a larger instruction funding requirement). This simple technique allows the formula to distinguish between lower level undergraduate and doctoral student credit hours, and all types of instruction, which are key characteristics of institutional mission.

#### *Graduation Rates and Student Retention*

As has been discussed, the first goal of the Tennessee Master Plan (2000-2005), to elevate the educational attainment levels of Tennesseans, is manifested through the enrollment driven design of the funding formula. Access is popularly and primarily defined as increasing the number of entering students. However, goal 1 of the Master Plan actually contemplates student retention and graduation, as much as it does new student enrollment. In fact, an objective within goal 1 of the Master Plan calls for improvement in student retention and graduation rates. These measures ultimately produce more citizens with bachelor's degrees and thus broaden notions of access beyond just student inputs. Student outputs are evaluated as having as much importance in obtaining the goal of increased educational attainment as do student inputs.

Over the last several years, six year graduation rate at Tennessee universities have been steadily rising from 45.4% in 1996 (for the 1990 cohort of students) to 49% in 2002 (for the 1996 cohort). Yet, the 49% graduation rate still lags behind national norms. The funding formula implicitly rewards student retention, but does not evaluate student graduation, a major element to raising educational attainment levels.

The funding formula structure contains a built-in tool to reward institutions with higher student retention rates. Undergraduate student credit hours are divided between lower division and upper division, depending on the course level (as opposed to the student level). Within the enrollment matrix, upper level undergraduate SCH are divided by a lower student-faculty ratio, thereby producing a higher faculty FTE requirement. Therefore, the higher the retention rate, the more students who will be enrolling in upper division courses which produces a larger formula recommendation. Two separate institutions with the same enrollment numbers and even the same program distribution can have very disparate funding recommendations depending upon their student retention rates. Yet, though retention rates play prominently through the formula, graduation rates are not a component of the funding formula.

#### *Economic Development and Business Partnerships*

Goal 8 of the Tennessee Master Plan calls for higher education to offer programs that address "economic, intellectual and social problems." The objectives for this goal call for higher education funding to reward institutions who partner with businesses, governments and other entities in programs that contribute to the economic and social enhancement of the state. Currently, the Tennessee funding formula contains no provisions for rewarding such

behavior, nor is this goal a target of the Performance Funding program. The state has clearly made a priority of encouraging collaboration between higher education and business by including such language in the state Master Plan. Surely, individual institutions engage in such partnerships on their own, but that behavior is not evaluated within the existing Tennessee funding formula.

### *Revenue Adequacy*

A funding formula should generate a recommended appropriation that provides institutions with adequate revenues for operations. The Tennessee Master Plan calls for a sustained funding level (goal 5) and includes an objective that strives to set limits on tuition levels. Yet, limits on tuition assume that the state can adequately fund its portion of the costs of higher education. If revenue adequacy is an important goal and a necessary operating function, then limiting tuition to an optimum level is a luxury rather than a mandate. Benchmarking and evaluating revenue adequacy is a tricky task. Usually it is done through analysis of peer institution revenues, yet the Tennessee funding formula does not include any data on peer revenues. Revenue adequacy is an evaluative tool, but not a component of the funding formula.

Calculations in the Tennessee formula establish a total formula need that is intended to estimate the necessary expenditures for operation. Separate tuition revenue streams are then deducted from the total need amount to determine the state appropriation recommendation. The state has not fully funded the THEC formula request since 1986-87. Consequently, tuition and fees have filled the gap from stagnant state appropriations in higher education's revenue composition. No trigger or provision exists in the formula to ensure revenue adequacy, and no attempt is made in the formula or in the Master Plan to reconcile the goals of revenue adequacy and limited tuition.

### **Discussion**

Historically at times, the Tennessee funding formula has been a primary force in shaping institutional behavior. Through its design, the funding formula has encouraged the aggressive pursuit of access, encouraged accountability through performance funding and promoted student retention. However, many issues that are ostensibly important to Tennessee higher education have not been properly reflected in the funding formula. Of more immediate importance is the fact that the higher education climate of the last several years has introduced new or amended goals and priorities for higher education (through the revised planning document - the Plan of Action) that the current funding formula is slow to address, if it contemplates them at all.

Of the six areas reviewed that were identified by the Tennessee Master Plan as state goals: access, accountability, institutional mission, graduation/retention, economic development/business partnerships and revenue adequacy, the current funding mechanism generated mixed results in its ability to reflect and promote the identified goals. There were direct links to the funding mechanism in some cases (access), and little or no link in others (business partnerships). State goals for a system of higher education are rarely stagnant for prolonged periods of time. Instead, they are generally an evolving set of priorities and values, shaped by contemporary needs and conditions of the state. As state priorities change, as they have with the Plan of Action and as they are likely to in the near future, it is prudent to

ensure that the funding formula reflects as accurately as possible the collective goals of a state's higher education system.

The Tennessee funding formula was developed at a time when enrollments were increasing from the wave of the baby boom. At that time, states were designing funding structures that were able to respond appropriately to large influxes of new students. The adequacy of the funding to address the growing student populations and the equity of funding across a wide range of institutions were the prevalent philosophies when current funding structures were developed (Jones 1984). While the landscape has changed – enrollment growth has slowed, population demographics have shifted and the revenue structures of higher education are evolving – the funding structures have remained largely unchanged.

It is paramount that a state's funding mechanisms be structured to reflect and announce current statewide higher education policy goals. Ideally, a funding formula should reflect statewide higher education policy goals, or that "form should follow strategy," (Jones 1984, p. 50). One of the challenges for those charged with the design of funding formulas is to reflect properly in the funding mechanisms those policies or values that institutions and states hold dear. Due to several years of steep decline in state support, Tennessee initiated several policy reforms in 2002 via the Plan of Action in conjunction with a thorough review of its longstanding funding formula. The policies were enacted in order to respond to years of state underfunding of higher education. Such policies, as well as existing statewide goals for higher education, must be reflected in the funding formula in order to have an effect on institutional behavior. If initiated properly, "policies governing the allocation and use of state funds are probably the most powerful" tool for affecting institutional behavior (Jones, Ewell & McGuinness, 1998). In a case study of the higher education system of New Mexico, Martinez (2002) found that higher education structure and fiscal policies have generally had a positive impact of institutional performance. He cautioned, however, that "the combination of the existing system design, fiscal policies, and lack of state-level ability to influence higher education has produced a somewhat inefficient system that repels direct state signals," (p. 24).

Repelling state signals of policy goals is quite obviously antithetical to what a funding mechanism should do. Unless the funding formula accurately reflects statewide policies and goals, its adequacy and legitimacy will be questioned by state government officials and higher education leaders. If constructed properly, it can influence institutional behavior in ways that are consistent with state policy and master planning. The funding mechanism is a statement of values and it "behooves the state to consciously choose allocation mechanisms that reinforce institutional behaviors considered most desirable," (Jones, 1984, p. 14).

The challenge for policy makers is to design a formula that closely models reality, thus allowing the mechanism to more appropriately respond to policy options, while also maintaining a design that is simple and easy to understand (McKeown, 1996). Congruence with state policies and goals, primarily within the state Master Plan, is a necessary component of a well-designed, responsive funding mechanism. Yet, when the state master plan is vague or the priorities of a state are ambiguous or conflicting, the funding structure loses its ability to be an effective reflection of values and policy. Over time, the formula procedures become more important than the policies they are designed to reflect. The formula itself becomes the policy, rather than the vehicle for promoting policy and values.

As the state of Tennessee and THEC engage in a review of the funding formula, the need is clear for linkages between statewide priorities for higher education and the mechanisms used to fund the enterprise. The current formula has a mixed record of its ability to reflect and reinforce higher education policy appropriately. Throughout the review process, which involves state policy makers, legislative representatives and higher education leaders, constant vigilance should be granted to determining those values and goals which should be most clearly reflected in the funding formula. Thought should be given to what behavior the funding formula should reward or encourage and what principles and values should guide the deliberations.

Those deliberations will be guided by the new statewide Master Planning document that Tennessee is in the process of producing for 2005-2010. A committee consisting of representatives from THEC, higher education institutions, state political leaders, governing boards and others began the Master Plan process in the spring of 2004. Once the policy direction of Tennessee higher education has been established by the Master Planning committee, the formula review committee will have its charge and can begin designing a funding mechanism that operates in tandem with the state's Master Plan.

In addition to the direct link between the funding formula and Master Planning, Tennessee was one of five states that received a grant in 2004 from the Western Interstate Commission on Higher Education (WICHE) to study and enhance the linkages between tuition, state appropriations and financial aid. For the better part of the last decade, higher education finance policy in Tennessee has been piecemeal and without a clear philosophical direction. The funding makeup of Tennessee's universities has shifted from a primary reliance on state appropriations to equal proportions of student fees and state funding. Thus, tuition and fee levels have risen rapidly over the last five to seven years, ending what was once an advantageous and sound policy of being a low fee state. As tuition levels rose, legislative attention to student financial aid sharpened as funding for the Tennessee Student Assistance Corporation, home of the basic need based grant state program, rose significantly. Yet, even with a doubling of TSAC funding over the last five years, Tennessee continues to trail comparable states in financial aid funding, according to data from the National Association of State Student Grant Aid Programs (NASSGAP). This coupling of depressed appropriations and spiked tuition has an adverse effect not only on the quality of the education offered in Tennessee, but in the quantity of students the state is able to serve as many lower income families are effectively being "priced out" of a state supported education.

Participation in the WICHE grant will allow Tennessee policy makers an additional opportunity to link the fiscal mechanisms that control tuition, state appropriations and financial aid. The inclusion of these formal links in the funding formula will be a valuable policy tool as Tennessee formulates higher education policy in the future.

Inadequate formula funding in Tennessee has jeopardized the continued existence of the current formula methodology, a reality that was reflected in the Plan of Action master planning document that called for a review of the funding mechanism. This desire, though, was borne as much from the fact that, due to prior inadequate funding, the state can inconceivably fund future formula requirements as from a principled desire for the basic building blocks of Tennessee's funding mechanism to change. The 2003-04 Tennessee state appropriation recommendation was funded at a rate of 72%, some \$400 million short of the request. Such pent up demand, rather than structural inadequacies, calls into the question the

continued viability and use of the current mechanism. Radical change becomes an option when solid state support is no longer a realistic possibility (Jones, 1984).

**Future Directions**

Formula design must be a deliberate exercise that incorporates statewide master planning objectives. Consciously or not, the creation and execution of a funding formula is value laden. It is vital that there is an understanding that priorities are communicated through the structure and calculations in a funding formula, whether intentional or not. Thus, a clear funding strategy that aligns planning and funding is necessary. Proper alignment will clearly signal the state's priorities while also providing incentives for institutions to actively participate in pursuing common, statewide goals. Temptation is to create or modify a formula that is an innocuous compromise between political leaders, institutions, governing boards and coordinating boards. Instead, states should pay close attention to design and construction of the funding formula so that it may be a valuable tool of state education policy.

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